

Cover image: The ASV's 40 inch SDM telescope at LMDSS under the Milky Way. *By Greg Walton*

SCORPIUS

THE JOURNAL OF THE
MORNINGTON PENINSULA ASTRONOMICAL SOCIETY INC.

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The Mornington Peninsula Astronomical Society (formerly the Astronomical Society of Frankston) was founded in 1969 with the aim of fostering the study and understanding of astronomy by amateurs and promoting the hobby of amateur astronomy to the general community at all levels.

The Society holds a focused general meeting each month for the exchange of ideas and information. Regular public and private observing nights are arranged to observe currently available celestial objects and phenomena. In addition, the Society encourages the service of its members for on-site or off-site educational presentations and observing nights for schools and community groups.



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Mornington Peninsula Astronomical Society

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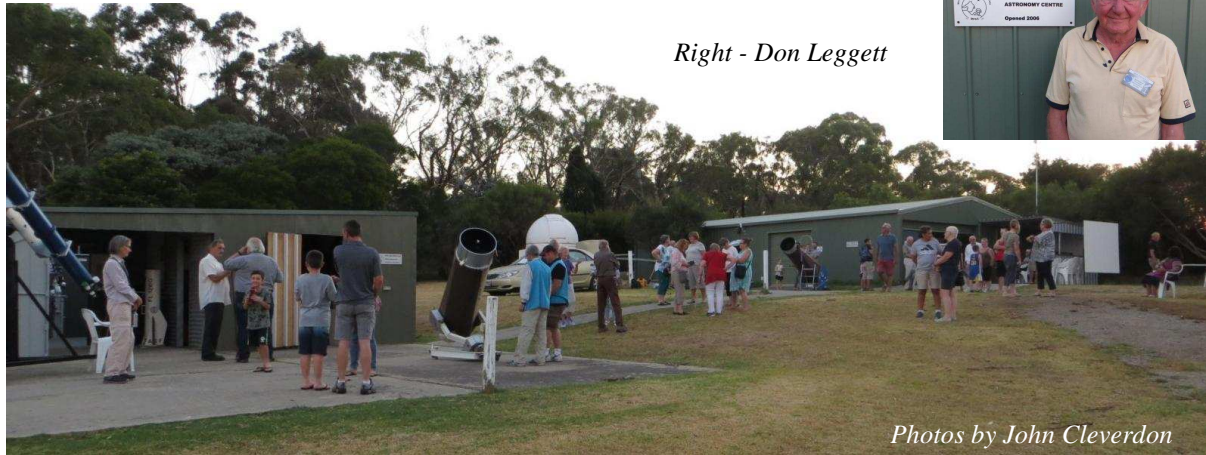
SOCIETY NEWS

By Greg Walton



School viewing night February 26th - Clear skies greeted the 85 year 5/6 students from Sirius College who visited Camp Manyung in Mt. Eliza last night. Reach for the Stars is their very appropriate school motto. Peter Lowe gave the talk inside the hall, while Simon Hamm and Fred Crump warmed up the audience with the Apollo poster and doing roadie-type things. Outside on the oval contemplating the heavens with 7 telescopes (and 2 more in reserve just in case) were Mark Stephens, Nerida Langcake, Roland Knabe, Peter Skilton, Robin Broberg, Philip Rea and Phil Holt. Roland even had his notoriously forgotten Central Australian red dot pointer with him, so we know it really does exist, and his car had been hosed off of red dust. Mars was the only planet visible and that quickly disappeared behind trees. There were a couple of unusual tumbling satellites high overhead, one giving a bright flash, but unsure if it was an Iridium flare or not. The Orion nebula was very prominent as were the Pleiades and Hyades clusters nearby. And, yes, they all got to see Sirius in the sky. *Regards, Peter Skilton*

Public Night March 1st - There was a bumper turnout for the March public night at the Briars in very warm conditions and under almost cloudless skies and fortunately no mosquitoes. Unfortunately, however, no planets were visible at a convenient time for the public. Nevertheless, we had 105 visitors, with the furthest families coming from Shepparton in Victoria, and another couple of amateur astronomers visiting from the Midlands in the UK and who booked before travelling after seeing us mentioned by the IAU as one of their registered centenary outreach events around the world this year. All telescopes in the main observatory building were in operation, with some recently certified trainees bravely stepping into the breach to face the public and living to tell the tale. The new red LEDs pegged down by Nerida Langcake lit the way from the upper slab safely down to the observatory and helped encourage people down there who hadn't yet been properly dark-adapted. The talk indoors was given by Peter Lowe, with a constellation of other members outside helping, including Joanna Shepherd, Robin Broberg, Anders Hamilton, Peter Skilton, Jamie Pole, Simon Hamm, Fred Crump & Bonnie, the Conboy family, Tischa Biddle, John Cleverdon, Don Leggett and his grandkids, Bob Heale, Mark Stephens, Paul Albers, Helmuth Schultes and probably others who signed the log book on the night but whom I've forgotten. Sing out & I'll add your name for posterity. *Regards, Peter Skilton*



Right - Don Leggett



Photos by John Cleverdon

School viewing night March 13th - The evening held at Parkdale Secondary College yesterday was another resounding success as part of their STEP programme. We had 177 from Year 7 attend to hear Peter Lowe give a shortened talk in the school hall, after successfully grappling with some IT connectivity issues with the school's projector. Then there was a stampede outside as the eager throng converged on the public park next door where 10 telescopes were set up under almost fully clear skies. Operating the instruments beneath the engine noise of light aircraft coming and going from Moorabbin Airfield were Joanna Shepherd, Nerida Langcake, Josh & Jamie Pole, Jamie & Dave Rolfe, Philip Rea, Peter Skilton, Greg Walton and Pia Pedersen. An 8-day old Moon was high in the sky near Aldebaran giving clear views of craters, mountains and other features. Orange Mars was in the East and was seen by everyone before it set behind houses. The Orion Nebula was prominent all evening as were several other delights such as the Pincushion Cluster which we all learned was the first object ever imaged by the Hubble Space Telescope - probably out of focus. We also found out that the school was additionally planning to have interested students attend the annual NASA Space Camp in the USA, so exciting times ahead as they are very motivated with astronomy. *Regards, Peter Skilton*



Society Meeting March 20th - saw about 40 members in attendance. Dave Rolfe chaired the meeting, updating members on recent and upcoming events including the Snake Valley astro-camp. Then Greg Walton talked about building large Dobsonian telescopes, the ASV Messier Star Party at Heathcote and Sky of the Month. Afterwards members chatted over coffee. No viewing due to clouds.

Link to the channel holding all the videos <https://www.youtube.com/channel/UCm6XOkIcIft4y0XRBXpXuw>



Telescope Learning Day & Members BBQ March 23rd - The telescope learning day and BBQ was held at the Briars last night with a good turnout of members and with about half the anticipated 100 public visitors who'd booked actually turning up on the night. It was warm and quite cloudy, but the clouds did break up as the evening progressed, enabling the few dozen telescopes of all shapes and sizes on site to see the sky. The first talk before the BBQ was given by Peter Lowe on the History of Telescope Design.

This was video taped and is now up on YouTube if you wish to watch it.

<https://www.youtube.com/watch?v=zKdZsrSdEc0HYPERLINK>
[https://www.youtube.com/watch?v=zKdZsrSdEc0&t=99s"&HYPERLINK](https://www.youtube.com/watch?v=zKdZsrSdEc0&t=99s)
[https://www.youtube.com/watch?v=zKdZsrSdEc0&t=99s"t=99s](https://www.youtube.com/watch?v=zKdZsrSdEc0&t=99s)

A subsequent informal talk/Q&A after the BBQ was given by David Rolfe on Telescope Basics for Beginners. Unfortunately this wasn't able to be recorded and so isn't on YouTube for those who missed it. There's always the next TLD for that. *Regards, Peter Skilton*



Members helped all those who brought along telescopes, making sure the finders were adjusted and that everyone knew how their telescope worked. We were impressed with the large number of quality equipment people had this year. Hopefully they will return one day.

A big thank you to all who helped out on the day, especially those stuck in the kitchen or by the BBQ.



Scouts at the Briars March 27th - The evening visit to the Briars by 65 Baden Powell Scouts, plus their leaders on top of that, from South Frankston/Mt. Eliza went ahead as planned, and the skies put on a wonderfully clear and steady view, aided by no Moon above the horizon. So they were treated to numerous objects but, alas, no planets at the moment. The Large Magellanic Cloud, Omega Centauri and the 6th star of the Southern Cross were easily visible by eye. Peter Skilton gave the talk indoors, fielding many dozens of questions and encountering a budding flat Earther. Outside, bathing in starlight, were members Robin Broberg, Fred Crump & Bonnie Cass, Peter Lowe, Greg Walton & Pia Pedersen, Nerida Langcake, Jamie Pole and Anders Hamilton. *Regards, Peter Skilton*



School camp viewing Night April 1st - Six members travelled to Grantville, near to French Island, on Monday evening for a camp stargazing visit for Strathcona Baptist Girls Grammar school. There were 35 year 5 girls in attendance, plus teachers; and this was the first night of camp so they weren't worn out yet. The evening started with promisingly clear skies that very quickly clouded over with the edge of the cloud visible in all directions near to the horizon. So the cloud seemed to be parked right over us. Fortunately, it cleared for about 20 minutes during the evening, enabling the girls to see the Jewel Box, Pincushion Cluster NGC3532, Orion Nebula and some double stars. The Moon and planets were not visible that time of the evening, but the site was elevated so views of Western Port Bay and French Island were spectacular with very few residential lights in the region. Peter Lowe and Simon Hamm were inside grappling with the technology for the talk, and outside on the camp oval with telescopes were Nerida Langcake, Pia Pedersen, Greg Walton and Peter Skilton. The girls all certainly seemed excited to be spending some time in the dark on camp with their friends. *Regards, Peter Skilton*



Public Night April 5th - The Friday public night for April saw 70 visitors plus members on top of that in short shirt-sleeve weather. The evening started under complete cloud cover, then cleared brilliantly around 9pm for a couple of hours before the clouds reappeared. So everyone was able to get a good view of the deep sky objects on offer, such as Omega Centauri. Trevor Hand gave a meteorite talk inside, while outside helping we had Piper, Ashley and Jamie Grierson looking after the welcome desk and selling tiny telescopes, Nerida Langcake, Peter Skilton, Simon Hamm, Fred Crump, David Rolfe handing out ordered 50th anniversary merchandise, Henry Van Lierop, Mark Stephens, Coleen and Peter Conboy, Greg Walton and Pia Pedersen. Although the log book didn't show it, allegedly members Jamie Pole, Katherine McCoy, Bob Heale and Peter Lowe were also there. *Regards, Peter Skilton*

Society Meeting April 17th - our guest speaker was the astrophotographer Mr Alex Cherney renown for his artistic time-lapse photographic projects and a two-times winner of the international Starmus prize. Alex showed some of the background to his projects and revealed the extent of the preparation work required to achieve these spectacular results. Showcasing the CSIRO Radio-telescope and time-lapse from Parkes Radio-telescope, Australia Telescope Array at Narrabri, NSW and Australian Square kilometre Array Pathfinder at Murchison, WA. See right.



Members Easter BBQ April 20th - saw about 25 members in attendance. Bob Heale and Simon Hamm set up their goto telescopes on the upper slab along with 2 new members who also set up some small telescopes. Mark Hillen turned sausages on the BBQ, while Pia and Nerida's children set up Easter decorations on the tables. While seated we played 2 DVD's: In the Shadow of the Moon and James May on the Moon. After dinner Mark open the observatory and showed new members various objects through the 14 inch Meade. As it was a full moon and the viewing would not be crash hot, I set up my computer and projector to cast deep sky images on to the Sirius dome, which kept everyone amused. Bob showed Jupiter through his telescope. It was an early night with everyone packing up around 10pm as clouds started to block out the sky. *Photo by Nerida Langcake*

Saturn goes behind the Moon April 25th - On arrival at the Briars the sky was clear, but soon the clouds start approaching from the west, about 6 members showed up for this event. At 10:30pm just as the Moon was raising in the east the clouds blocked our view. Then we waited the 50 minutes for it to emerge on the dark side of the Moon. Luckily the clouds cleared just in time so everyone got to see or images this event. There was a problem with trees blocking my view, which I quickly cut back and I also had to rise the 5 inch refractor up to be able to see Saturn and the Moon over the wall of the observatory. *Greg Walton*



Egress image attached of last night's occultation of Saturn at 11:28:18 pm AEST by the Moon from Mt.Martha. Also captured a video, but too large to attach here. The image has been rotated by about 90 degrees anticlockwise so that it's the same orientation as was visible in the sky by eye. My telescope orientation on the night rotated it around. Using Powerpoint I've added in a yellow circle so you can see the edge of the Moon near to Saturn, which appears at the top of the image as it travelled up and to the left of this orientation. An ordinary iphone 6 smartphone was used (yes, it's oldish technology), using the Apple bog standard app to control it - in other words, little or no manual control at all! I had a nicer free video app that imprinted time to 1/100th second on the video frames in real time and allowed some manual control of the camera parameters, but alas an IOS upgrade blew it away and I couldn't refund it. The phone camera was looking through a 26mm eyepiece on my 40+ year old f/5 6-inch portable Newtonian that I usually bring to outreach nights. And the Nexyz holder wasn't used, only something more primitive. The video was as-captured by the phone, so exposure varies a bit over time as the auto-exposure gets affected by how much of the lunar bright limb is in view.

It was windy, cool and cloudy. I was able to track in right ascension, but had to manually track declination as there was a dodgy electrical connection somewhere and polar alignment was rough and ready. Cloud totally covered Saturn moving behind the Moon while 3 degrees elevation, but fortunately had largely broken up by the time it re-emerged at 11 degrees elevation in the East. Interestingly, I think the video captured by the iphone looked better exposed and gave more detail than the still image attached. But there again I suppose I had to prod my phone's button with my chilled finger in order to capture that still and probably shook all detail out of Saturn. Notice how tiny Saturn is relative to the Moon, and note that its rings appear first as it emerges from behind the Moon. Titan was also meant to be visible, but I couldn't see it when I looked. The darkish blob in the centre of the still image is the shadow of the telescope's secondary mirror, testament to the phone's camera not being at the exact right spot needed (probably in the Z-axis). *Regards, Peter Skilton*



MEMBER PROFILE



Logan Nicholson - [instagram: @lognic04](https://www.instagram.com/lognic04)

This inspiring young man joined MPAS one year ago and likes to have ago at all aspects of astronomy. He has now built 2 Dobsonian telescopes, even grinding the mirrors him self. Has also mastered deep sky astrophotography where other have failed, see back ground image of M83. Logan is happy to share his knowledge, making many videos and posting them on YouTube, setting up his own youtube channel called Australian Astronomy and has also done many talks at school and camps.

Logan Nicholson

https://www.youtube.com/channel/UC3YjBreMbj_5D3LJhjbALrg

Going to the Moon

<https://www.youtube.com/watch?v=3K53UALe8Fg>

Dark sky

<https://www.youtube.com/watch?v=cYG3vs9U3FE>

Logan likes to spend as much time under the stars as he can, also joining the ASV and Mt Burnett Observatory, which give him many places to hang out and set up his impressive astrophotography equipment or just absorb more information. Logan is lucky to have parents who happily drive him far and wide to many dark sky site like the ASV's LMDSS near Heathcote.



Australian Astronomy

Australian Astronomy
96 subscribers

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- Imaging NGC 1999 in Ha 5:32
- Making a Pitch Lap for telescope mirrors 12:44
- Telescope mirror making - 9 micron grinding 0:34
- Drill powered Fixed Post grinding machine 1:00



MPAS members please consider a position on committee, as we have much work to be done for the leading up to the MPAS 50th year celebrations & Vastroc.

MPAS - Society AGM

The AGM is in July each year.

Current Committee

- President:** Peter Lowe
- Vice President:** Greg Walton
- Secretary:** Peter Skilton
- Treasurer:** Jamie Pole
- General Committee:** Anders Hamilton, Trevor Hand, Simon Hamm, Nerida Langcake & Rohan Baumann.

Life Members are automatically committee members

AGM Invitation

17th July 2019 at 8PM
 The MPAS Briars site
 Don Leggett Astronomy Centre
 Nepean Hwy, Mt Martha
 (Melways ref. 151/E1)

Agenda

1. Apologies
2. Confirm Minutes of previous AGM
3. President's Report
4. Treasurer's Report
5. Election of Incoming Committee
6. Special Business (none notified)
7. Other Thanks
8. Close of AGM.

We hope to get more members on committee.

If you feel you would like to get involved in the society business or have a particular skill you think would be useful to the society as a whole please give some thought to becoming an Office Bearer or committee member.

The Annual General Meeting will be held on Wednesday 17th of July, 2019. In this edition of Scorpius there is a 'Committee Election Form' that can be used for the submission of nominations for the next committee. This can be posted to MPAS, PO Box 596, Frankston 3199. Alternatively nominations can also be submitted electronically to welcome@mpas.asn.au, stating which position on the committee you would like to nominate for.

2019 AGM Committee Position Nomination - (Leave blank if not applicable)

I
 would like to nominate for the position of (circle)

- PRESIDENT
- VICE PRESIDENT
- SECRETARY
- TREASURER
- GENERAL COMMITTEE

for the Mornington Peninsula Astronomical Society committee of 2019/2020.

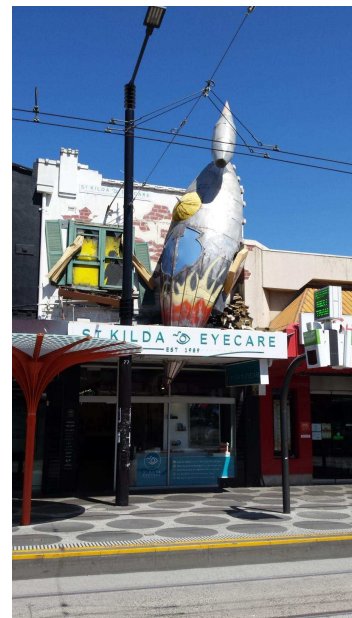
Seconded by

Dated/...../ 2019

Both the nominee and the seconder need to be financial members of MPAS at the time of the AGM. Nominations must reach the Secretary by the 10th July 2019.



I spotted this spacecraft crashing through a shop in Acland Street St Kilda. Wonder if they will get a parking ticket?



New Members Welcome

- Henry Van Lierop
- Stephen Mitchell
- Chris Kirk
- George Elliston
- Lisa, Omer and Pasha Fazlic

Scorpius editing team.

Members please write a story about your astronomy experiences and add some pictures.

Send them to: **Greg Walton** gwpmpas@gmail.com

MPAS SUBSCRIPTIONS 2019

Each ticking over of the New Year also means that Society fees are due to be paid. The committee has worked hard to ensure that 2018 fees are still the same as the previous many years' prices. So to assist the society in maintaining the facilities and services we provide and share, we appreciate your prompt payment for each and every year ahead. As a reminder, the following structure of the 2019 fees is:

SOCIETY FEES

Subscriptions can be paid in a number of ways:

- Cash payments to a committee member
- Send a cheque, made out to "Mornington Peninsula Astronomical Society", to MPAS, P O Box 596, Frankston 3199
- Make a direct electronic payment into the society working bank account.

The account details are BSB 033-272 Account 162207. Remember to add your name and details to the transfer so we can identify the payment in the bank records. If you have any concerns please talk to a committee member.

Click on the link for further information - https://drive.google.com/file/d/0ByvkvxzZG19g_NXZ4cWxHbERTdEE/view?usp=sharing

- \$50 – Full Member
- \$45 – Pensioner Member
- \$65 – Family Membership
- \$60 – Family Pensioner Membership



- Full Member \$50
- Pensioner \$45
- Family \$65
- Family Pensioner \$60

You can now renew your membership online. See link below. Click on Members then JOIN NOW at the bottom of the page. Then just fill in your detail on Try-booking. <http://www.mpas.asn.au/members.html>

CALENDAR		May / 2019					Red Days indicate School Holidays
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	
Eta-Aquarid meteor shower 19 April to 28 May			1 Io shadow 1:00am S Io transit 1:50am S Io shadow 3:14am F	2 Io transit 8:20pm S Io shadow 9:40pm F Io transit 10:20pm F	3 Eu shadow 8pm S Public Night 8pm Venus left Moon dawn	4	
5 New Moon	6	7 Gan shadow 7:50pm F Gan transit 8:50pm S Gan transit 10:58pm F	8 ASV Meeting Mars below a thin Moon Io shadow 2:55am S Io transit 3:38am S Io shadow 5:04am F	9 Io shadow 9:22pm S Io transit 10:05pm S Io shadow 11:33pm F	10 Io transit 12:15am F Eu shadow 10:40pm S	11 Eu transit 12:05am S Eu shadow 1:05am F Eu shadow 2:25am F	
12 First Quarter	13	14 Moon 369,009km Gan shadow 9:43pm S Gan shadow 11:59pm F	15 Society Meeting 8pm Gan transit 12:15am S	16 Io shadow 11:15pm S Io transit 11:51pm S	17 Io shadow 1:27am F Io transit 2:00am S	18 BBQ 6pm Members Night Eu shadow 1:15am S Eu shadow 3:40am F	
19 Full Moon Uranus left of Venus dawn	20 Jupiter right of the Moon	21	22 Saturn below the Moon Gan shadow 1:38am S Gan transit 2:3apm S Gan shadow 4:00am F	23 Saturn Oc by moon 9am Pluto above Moon 2pm Saturn above the Moon	24 Io shadow 1:10am S Io transit 1:35am S Io shadow 3:24am F Io transit 3:45am S	25 Eu shadow 3:47am S Eu transit 4:36am S Io transit 7:38pm S Io transit 9:50pm F	
26	27 Last Quarter Moon 404,138km	28 Eu shadow 7:28pm F Eu transit 8:06pm F	29	30	31 Uranus 5 deg N of Moon Io shadow 3:04am S Io transit 3:19am S Io shadow 5:15am F		

Monthly Events

MPAS calendar http://www.mpas.asn.au/Calendar_2019.pdf

Public nights - 8pm start on the 3rd @ the Briars

Society Meeting - 8pm to 10pm on the 15th @ the Briars

Occultation of Saturn by the Moon May 23rd 9am

Members Night BBQ - 6pm on the 18th @ the Briars

Time to start watching Jupiter's Moons and shadows transit across Jupiter's face. (S = start & F = finish)

CALENDAR		June / 2019					Red Days indicate School Holidays
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	
30	NOTE 19th June Gan transit 6:54pm F Gan shadow 7:52pm F	The theta-Ophiuchids Meteor showers May 21st to June 16th Peak 10th to 11th June			NOTE 26th June Gan transit 8:02pm S Gan shadow 9:29pm S Gan shadow 11:52pm F	1 Io shadow 9:32pm S Io transit 9:46pm S Io shadow 11:44pm F Io transit 11:55pm F	
2 Venus left of the Moon dawn	3 New Moon	4 Eu shadow 7:39pm S Eu transit 7:57pm S Eu shadow 10:04pm F Eu transit 10:20pm F	5 Mars right of the Moon	6	7 Public Night 8pm	8 Moon 368,504km Io shadow 11:17pm S Io transit 11:19pm S	
9 Io shadow 1:38am F Io transit 1:40am F	10 First Quarter Io shadow 5:55pm S Io transit 5:55pm S Io shadow 8:06pm F	11 Jupiter at opposition Eu transit 10:11pm S Eu shadow 10:11pm S Eu shadow 12:34pm F	12 ASV Meeting	13	14	15	
16 Jupiter right of the Moon Io transit 1:12am S Io shadow 1:20am S Io shadow 3:34am F	17 Full Moon Io transit 7:40pm S Io shadow 7:49pm S Io transit 9:50pm F Io shadow 10:01pm F	18 Mars and Mercury close	19 Saturn above Moon Society Meeting 8pm Eu shadow 12:46am S	20	21	22 Members Night BBQ 6pm	
23 Moon 404,548km Io transit 2:58am S Io shadow 3:15am S Io shadow 5:27am F	24 Io transit 9:24pm S Io shadow 9:43pm S Io transit 11:35pm F Io shadow 11:55pm F	25 Last Quarter Scorpis Deadline	26 Eu transit 2:40am S Eu shadow 3:22am S Eu transit 5:05am F Eu shadow 5:55am F	27	28	29 Eu transit 6:13pm F Eu shadow 7:06pm F	

Monthly Events

Public nights - 8pm start on the 7th @ the Briars

Society Meeting - 8pm to 10pm on the 19th @ the Briars

Members Night BBQ - 6pm on the 22nd @ the Briars

Jupiter at opposition on the 11th

Eu = Europa Gan = Ganymede

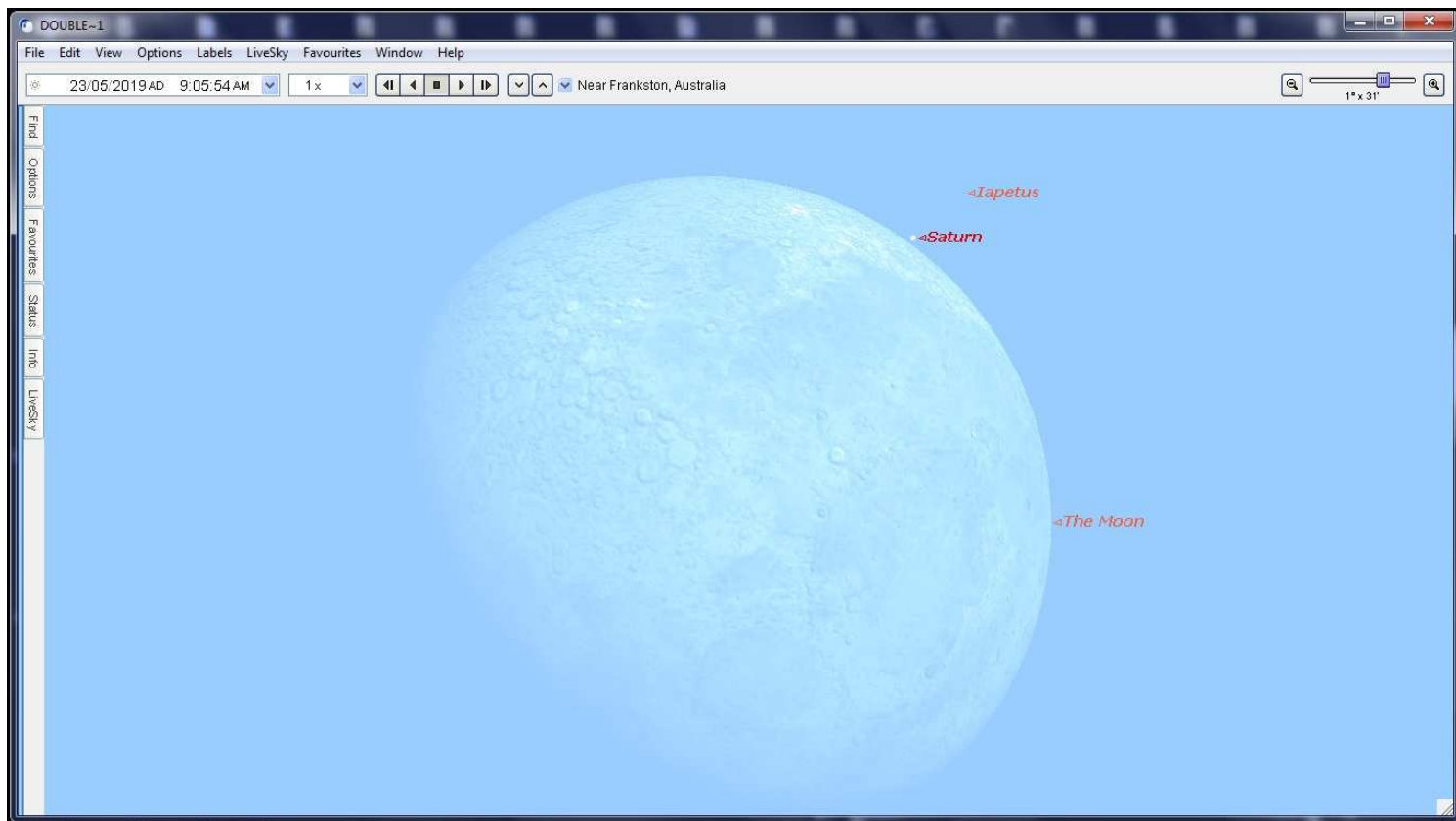
**Please... we need helpers to keep the MPAS Observatory open to members on all Saturday nights.
If you can help, contact Greg Walton on 0415172503 or email - gwmpas@gmail.com**

THE BRIARS SKY

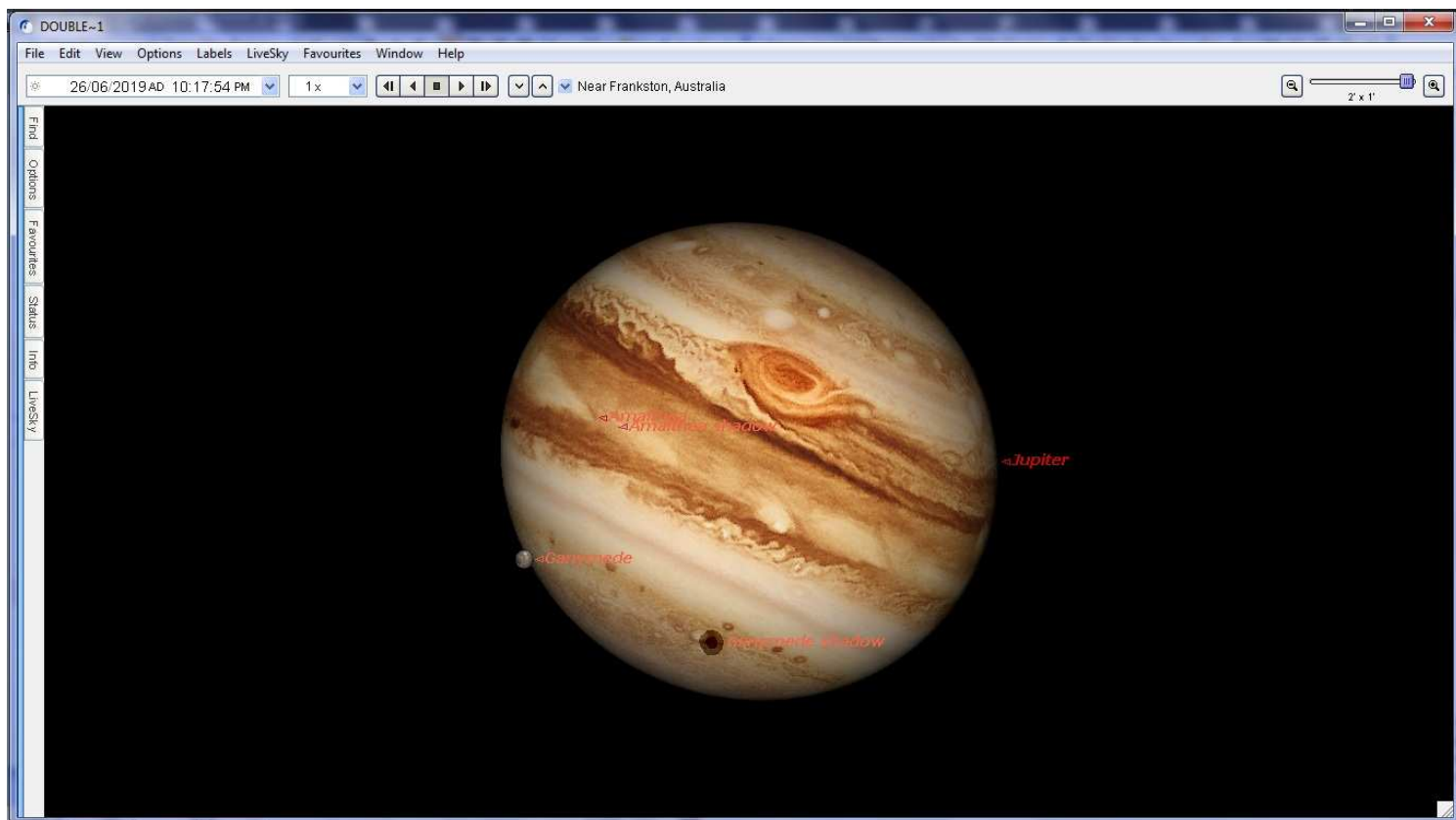
By Greg Walton



Occultation of Saturn by the Moon on May 23rd 9am in the morning. The Moon will be 17 degrees above the horizon in the west. It's not impossible but it could be a challenge for most. We really need good seeing conditions to see Saturn or image this event. I have seen Saturn in the daylight hours with my telescope, so it can be done.



Over the next 2 months the orbital tilt of Jupiter's moons will be in-line with Earth, so we will be able to watch Jupiter's moons cross Jupiter's face regularly. Jupiter's largest moon Ganymede casts the largest shadow and on the evening of the 26th of June around 10:15pm you will see Ganymede sitting on the edge with a dark spot at the bottom. Check the calendar above for other shadow transits. *Images produced on Starry night software*



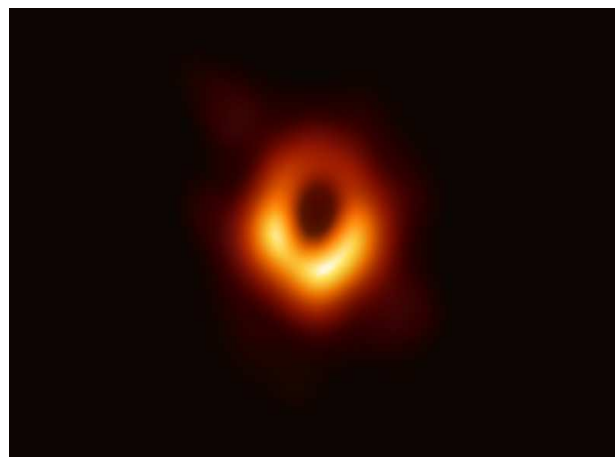
Astronomers Capture First Image of a Black Hole

Unless you've been sucked into a black hole (pardon the pun) then you have probably heard the news that scientists have obtained the first image of a black hole, using Event Horizon Telescope observations of the centre of the galaxy M87. The Event Horizon Telescope (EHT) - a planet-scale array of eight ground-based radio telescopes forged through international collaboration - was designed to capture images of a black hole.

The image reveals the black hole at the centre of Messier 87, a massive galaxy in the nearby Virgo galaxy cluster. This black hole resides 55 million light-years from Earth and has a mass 6.5 billion times that of the Sun.

The EHT links telescopes around the globe to form an Earth-sized virtual telescope with unprecedented sensitivity and resolution. The EHT is the result of years of international collaboration, and offers scientists a new way to study the most extreme objects in the Universe predicted by Einstein's general relativity during the centennial year of the historic experiment that first confirmed the theory. This long-sought image provides the strongest evidence to date for the existence of supermassive black holes and opens a new window onto the study of black holes, their event horizons, and gravity.

Note: The shadow of a black hole is the closest we can come to an image of the black hole itself, a completely dark object from which light cannot escape. The black hole's boundary - the event horizon from which the EHT takes its name - is around 2.5 times smaller than the shadow it casts and measures just under 40 billion km across.



The image shows a bright ring formed as light bends in the intense gravity around a black hole that is 6.5 billion times more massive than the Sun.

Credit: Event Horizon Telescope Collaboration

SpaceIL's Beresheet Lunar Lander: Israel's 1st Trip to the Moon



The Beresheet spacecraft captured this "selfie" during its landing manoeuvre on April 11, 2019



Israel's Moon probe snaps a final photo before crashing

In April 2019, an Israeli non-profit organisation called Space IL tried to become the first Israeli entity to land a spacecraft on the surface of the moon, but sadly, it failed to stick the landing.

SpaceIL's lunar lander, Beresheet, launched from Cape Canaveral on a used SpaceX Falcon 9 rocket on Feb 21, 2019, along with an Indonesian communications satellite and a U.S. Air Force satellite. Over nearly two months, the craft maneuvered into successively longer loops around the planet until reached the moon. Beresheet carried a time capsule of digital records and an instrument to study the moon's magnetic field. Although the spacecraft failed to touch down safely, it was the first attempted moon landing for Israel and the first for a privately funded organization from anywhere.

Beresheet made three orbits around Earth, each longer than the last, until the craft crossed paths with the moon. The original goal was to loop around the moon twice before touching down in the Mare Serenitatis, or Sea of Serenity, on April 11, 2019, at the end of a two-week long lunar night, the flight team expected. The early morning

light of the subsequent two-week lunar day gave the probe the energy it needed to record the local magnetic field, an experiment run in collaboration with NASA.

But even if it had landed successfully, the same sunlight would have soon spelled Beresheet's demise, overheating the lander's electronics. Now, the vehicle has become a monument. It's also an archive, as it carried a DVD-sized digital-analogue hybrid disks bearing copies of the Bible, drawings from Israeli schoolchildren, English Wikipedia and 30 million pages of records representing a "backup" of humanity's knowledge. SpaceIL hopes future moonwalkers might decode the time capsule and learn about Earth in 2019."

Despite Beresheet's disappointing crash-landing, the SpaceIL team remains dedicated to their goal of successfully landing an Israeli spacecraft on the moon.

THE SCORPIVS FILES

SCRIBBLED HISTORIES
BY PHIL HOLT

LINZ. AUSTRIA 1618.
KEPLER WAS STILL AT WORK FINDING MATHEMATICAL HARMONY IN NATURE, BUT THE ORBITS OF PLANETS HAD HIM STUMPED.



IN FLORENCE
GALILEO TOOK TIME OFF FROM OBSERVING TO REPLY.



SO HE WROTE TO A FRIEND...

Dear J,
how wonderful to hear from you in these difficult times

The 3 comets of this year have created quite a stir..

the Jesuits in Rome

scarcely sufficient ink to counter criticism

they have the temerity..

AND ON HE WROTE...



their poor knowledge of geometry...

Aristotle is to blame

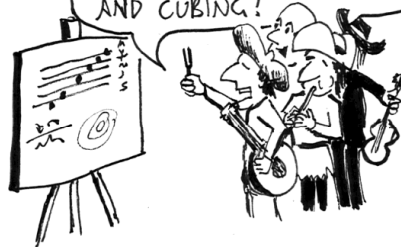
One day I will pen a scathing criticism.. I really will. But I digress... On the matter of orbital harmony I can only suggest calming music as inspiration.
Yours in sympathy
G.

KEPLER STUDIED THE WEIGHTY REPLY WITH INTEREST. THEN HE CALLED FOR SOME MINSTRALS.



UNFORTUNATELY WHEN THEY SPIED HIS HARMONIC CALCULATIONS THEY BEGAN TO PROTEST, AND THREATEN WITH THEIR TUNING FORKS...

THIS IS AN OUTRAGE ONLY ARTISTS SHOULD STUDY HARMONY! MATHEMATICIANS SHOULD STICK TO ADDING SQUARING AND CUBING!



FURIOUS, KEPLER THREW THEM OUT.

SQUARING AND CUBING INDEED!!



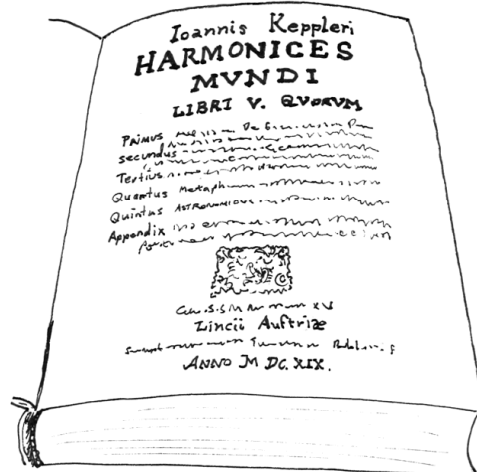
LATER...

MEIN GOTT! THAT'S IT. SQUARE THE ORBITAL PERIOD AND IT IS PROPORTIONAL TO THE MAJOR ORBITAL AXIS CUBED! (HIS FABLED THIRD LAW.)



THIS IN 1619 KEPLER PUBLISHED 'HARMONY OF THE WORLD' (BURYING HIS LAW IN BOOK 5, PROPOSITION 48.)

SO IN 2019 WE SHOULD CELEBRATE 400 YEARS OF SQUARING AND CUBING.



YOUR ASTRO QUESTIONS



To MPAS members,

Can anyone please explain how to calculate the AFOV (apparent field of view) for Tasco 25mm/36x and 6.3mm/143x eyepieces? I want to input these into Stellarium. *Thanks Andrew*

Hi Andrew,

The apparent field of view is a product of the particular eyepiece and varies according to the type and design. For example an Ethos eyepiece might have an AFOV of 100 degrees whereas my Pentax XW eyepieces have an AFOV of 70 degrees.

I have copied out below an extract from a forum on Cloudy Nights which gives a pretty good description.

“Many good answers above. In order to avoid confusion, let me re-state:

--In astronomy circles, it is the True Field of View (TFOV) that refers to the amount of sky you see in the telescope+eyepiece combination. It depends on the objective focal ratio f/D and the field stop diameter of the eyepiece, because that field stop 'cuts' the image formed by the objective, like a round biscuit cutter. Maximum TFOV with a given Optical Tube Assembly (OTA, i.e. the telescope without eyepiece) is achieved using the eyepiece with the largest aperture stop.

--In contrast, Apparent Field of View (AFOV) is a property of the eyepiece and refers to the apparent size of the image you see in a particular eyepiece, regardless of what OTA would be used with it. That is why it is not listed for a telescope OTA, unless it comes with an eyepiece, but is listed for eyepieces.

Because of aberrations like geometric distortion (usually of the pincushion type, where straight lines appear curved outwards), the AFOV is often larger than what would be derived from simple trigonometry using the eyepiece focal length and field stop diameter.

Easy method to obtain AFOV for an eyepiece: so-called 'both eyes open' method, no telescope necessary, just the eyepiece. Stand in front of a wall that has two markers separated by a few feet and look at the wall with left eye (say), and look through the eyepiece at the field stop (the sharp boundary between bright image field and black surrounding). Walk back and forth until the two markers seen by one eye match the boundary of field stop seen by the other eye, and mark the position on the floor where you stand. With the knowledge of the separation between the two markers on the wall and the distance between feet and wall, the total angle of the triangle defined can be calculated easily. If w is the separation between markers and d is the distance from feet to wall,

$$\text{AFOV} = 2 * \arctan(0.5 * w/d) .$$

As I wrote, often this experimentally measured value will often be a few degrees larger than calculated using same trigonometry using field stop diameter and focal length of the eyepiece instead of w and d , respectively. This is due to geometrical distortion and is not regarded as a problem for astronomy, but could be for terrestrial observation where straight lines should appear as straight lines.

I hope this is of some assistance. *Regards, Robin J Broberg*

Hi Andrew,

It's easy enough to do if you have a big atlas or a large on-line star chart which gives you the degrees marked along the side of the page.

Use your 25mm eyepiece to find a big star near the celestial equator. Put that star at the very edge of the eyepiece, and try to find a star near it which fits exactly opposite it in a straight line, or look for any two stars near it that are directly opposite each other which are on the diameter edges of the eyepiece field.

Locate those two stars on the atlas or sky chart, then use a ruler to measure the distance between them in millimetres. Then use the ruler to measure the edge of the chart to see how many millimetres there are to the degree. Convert the measured millimetres between the two stars to degrees, using the estimate from the side of the chart. Then multiply that figure by 36X, to get the AFOV.

Do the same for the 6.3mm eyepiece, but multiply by 143X. *Regards, Renato Alessio*

Hi Andrew,

When all else fails, look at the Moon. As the Moon is 1/2 degree in diameter in the sky. You should be able to have a pretty close guess at the field of view of any eyepiece. *Regards Greg Walton*

FOV - Field of view of most common eyepieces

Orthoscopic = 40 degrees
 Plossl = 50 degree
 Super Plossl = 55 degrees
 Radian = 65 degree
 Panoptics = 68 degree
 Nagler = 82 degree
 Ethos = 100 degree



Snake Valley – March 2019 Camp. *By Dave Rolfe*

Jamie Pole & I made the trip west again to the Snake Valley astronomy camp held on the Labour Day weekend this year. The number of attendees at this year's camp was down from the typical 50 to about 25, mainly due to the ASV Messier Star Party the previous weekend and the non-favourable weather prediction.

Snake Valley is a town about 15 minutes west of Ballarat. The camp we stayed at (on the edge of the township) was a WW2 internment camp that surrounds a lake, called Crystal Lake. There are about a dozen cabins with bunk beds, a common hall, a shower block and a fully equipped kitchen.

Jamie and I arrived on Friday afternoon at the start of the camp and I proceeded to set up my camper trailer while Jamie set up his imaging rig. Next, we made a dipole antenna for some amateur radio play as the bad-weather backup strategy; as we had the space, we made it resonant at 1.8Mhz (about 40m each side of centre). Getting one end attached through an eyelet on the powerline stay wire would have been a humorous event for others.

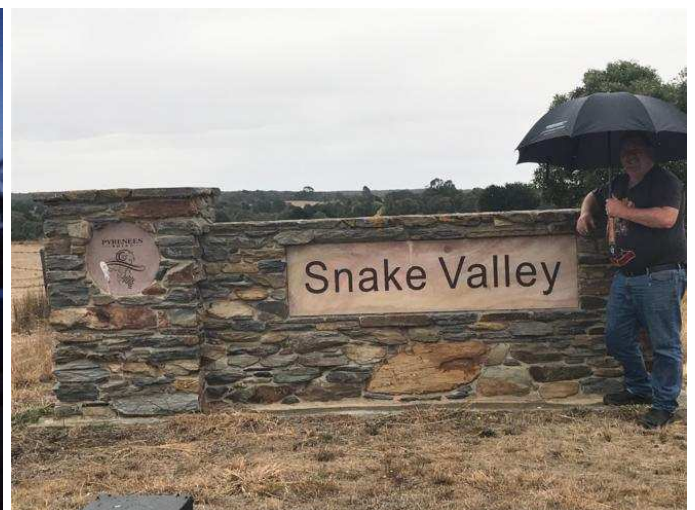


The Friday night turned out to be completely clouded out until about 4AM, but by then everyone had given up merrily with a few drinks. Saturday the bulk of the attendees arrived in bright sunshine which Jamie made use of with a nice solar image showing the single sunspot.

As Saturday night approached the spit roast feast was served - the smell was detectable from anywhere on the field. Following this there were 3 different pavlovas for dessert of which I had a small sample from each! The warm and sunny day concluded, and the weather stayed clear into the night for some good viewing through to about 2AM.

There was some smoke haze on the horizon (probably from the Bunyip fire?) but anything above 40deg was decent and sharp. I spent the evening floating around the large dobbs on the field and joining in some impromptu sky tours while my photographic time-lapse was running unattended. Jamie was firing up his imaging rig but had some Windows 10 issues that thwarted his every effort and strategy. Astonishingly the laptop did survive the night however and did not swim in the lake!

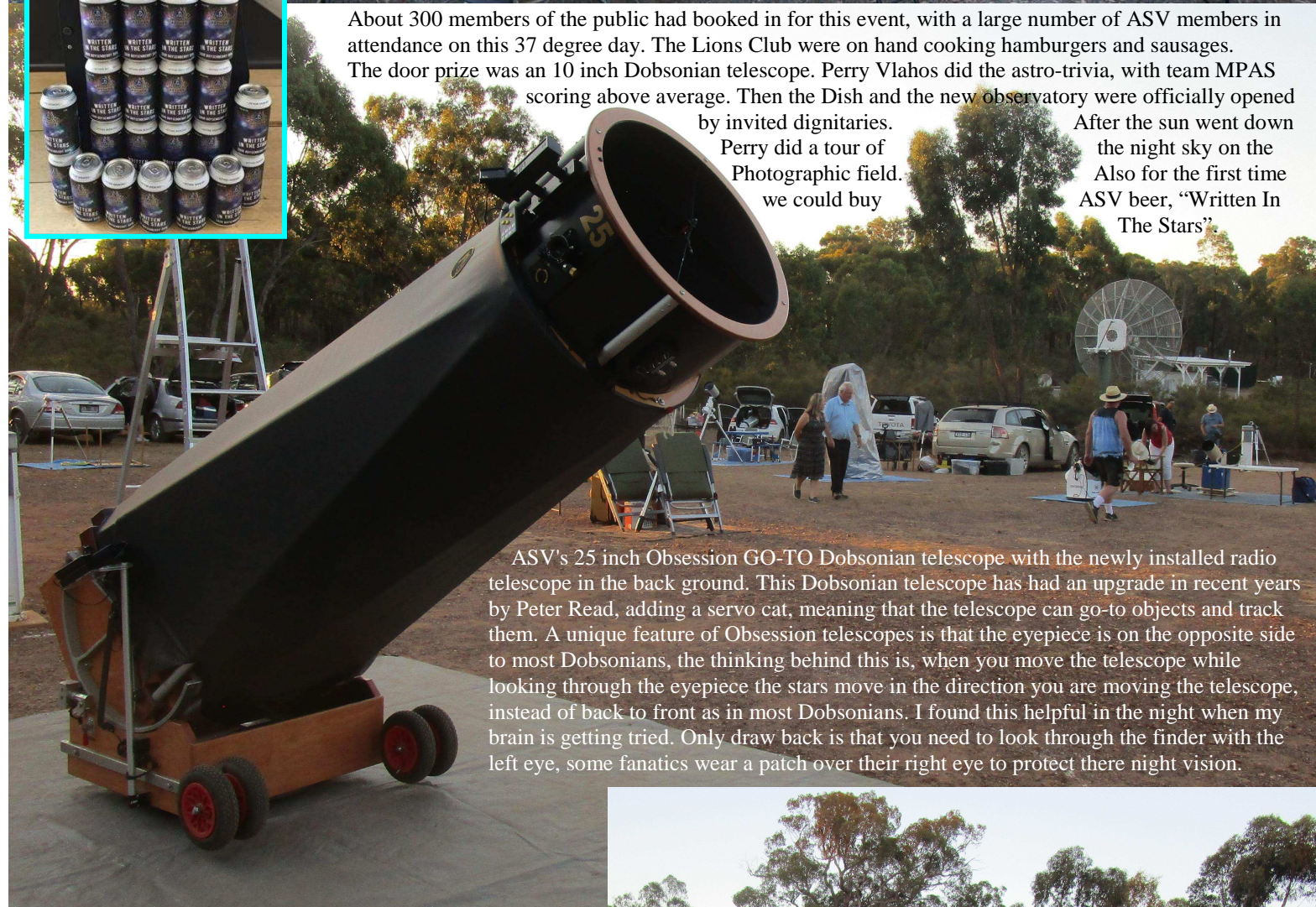
I packed up dry and headed home on the Sunday while Jamie decided to stay on one more night to soak up more of the atmosphere and rain. The next Snake Valley camp is on the weekend of the 25th of October. If anyone is interested in going to this very fun, social and relaxing astronomy camp, drop an email to me and I will add you to the mail list.



MPAS @ THE ASV MESSIER STAR PARTY NEAR HEATHCOTE VICTORIA



About 300 members of the public had booked in for this event, with a large number of ASV members in attendance on this 37 degree day. The Lions Club were on hand cooking hamburgers and sausages. The door prize was an 10 inch Dobsonian telescope. Perry Vlahos did the astro-trivia, with team MPAS scoring above average. Then the Dish and the new observatory were officially opened by invited dignitaries. After the sun went down the night sky on the Also for the first time ASV beer, "Written In The Stars"



ASV's 25 inch Obsession GO-TO Dobsonian telescope with the newly installed radio telescope in the back ground. This Dobsonian telescope has had an upgrade in recent years by Peter Read, adding a servo cat, meaning that the telescope can go-to objects and track them. A unique feature of Obsession telescopes is that the eyepiece is on the opposite side to most Dobsonians, the thinking behind this is, when you move the telescope while looking through the eyepiece the stars move in the direction you are moving the telescope, instead of back to front as in most Dobsonians. I found this helpful in the night when my brain is getting tired. Only draw back is that you need to look through the finder with the left eye, some fanatics wear a patch over their right eye to protect there night vision.

Members getting ready for a long night, with someone setting up an Air Bed on the viewing field.



Link to rolling back the roof video - <https://drive.google.com/open?id=1RVWbkR8Z5Ee7mlC3QoXc2sChiODoTmBL>



The ASV's new observatory is located on the north side of the viewing field. A winch was used to move the whole upper half of the building to the right along the rails shown in the photograph above. The observatory houses the new 40 inch SDM & 20 inch second hand Obsession Dobsonian, a 10 inch Meade LX200 & a large pair of binoculars on a tripod.

Past president Jim Trainor kindly donated the money for the roll-off roof observatory, new radio telescope, new accommodation building and toilet block at the ASV's LMDSS near Heathcote.

Left - Australian Chief scientist Alan Finkel opened the Jim Trainor Visual observatory. See video link

Alan Finkel opened the JTVO, by *Dave Rolfe*
<https://m.youtube.com/watch?feature=youtu.be&v=aD1BGC3S8gk>



ASV's New 40 inch Go-To Dobsonian Telescope. Said to be the largest in Victoria. Built by Peter Read at SDM. The 40 inch primary mirror was made by Hubble optics and is of a fabricated design to reduce cooling time and weight. The secondary mirror is 8 inches in diameter which is needed because of the fast 3.3 F ratio. You can see the eyepiece is located on the same side as most Dob's.

Eyepieces are kept in a strong lockable cabinet, with only members that have done the training getting access.

Looking through this monster on the Friday, I was pleased with the view. Even with the less than desirable high day time temperatures the telescope worked ok. Still some improvements to be made with extra cooling fans.

The Dish (ASV) Finally after many years of looking at the dish lying on the ground, it was installed on its tower just before the Messier star party. On the Friday night I set up my time lapse camera in front of the Dish pointing south so as to capture the Milky Way crossing the sky behind the dish. Someone had left a red light running just behind my camera, which illuminated the dish just nicely. The next morning I fetched the camera and was amazed to see the dish moving in the night on my camera. I quickly downloaded the photos to my computer and converted them into a video. When I played it, I was very happy, see link below.

Ted Baillieu, former Premier of Victoria, opened The Dish and admitted he did not know about the ASV & what we do, calling us a secret society. Dave & I recorded the speech, see link below. Dave Rolfe did much of the electrical work on the Dish & JTVO, whilst Pia & I did much of the engineering or the making of the parts for the Dish & manufactured the roller for the JTVO. *Story by Greg Walton*



Aerial view by Martin Jones



Pointing at my handy work!!



Ted Baillieu opened the Dish, by Dave Rolfe
<https://m.youtube.com/watch?v=RR8e5HDEVU8&features=youtu.be>

Ted Baillieu opened the Dish, by Greg Walton
<https://drive.google.com/open?id=1jcYwQpb5EaPOqqyFXNOiDJ1kPgUppQRk>

The Dish (ASV) Time Lapse, by Greg Walton
https://drive.google.com/open?id=1Xlvh-itE3C_2QPWqhgbd3HNBWEh0vSyn

Drone looking down on the dish, by Martin Jones
<https://www.facebook.com/martin.jones.1612/videos/10217166753813977/>



Falling In Love Again With Astronomy

North Of Coolah, NSW

Perched high above in the eucalypts, the local bird population performed their habitual morning ritual. Crisp calls pieced the morning stillness welcoming a new day... I felt privileged being with them, their calls seemingly for my ears only.

It was dawn on a balmy and still autumn morning in a stunning part of central New South Wales. How could I wish for more than being here alone on my walks, in the silence, happily awaiting any call from the trees to interrupt the inner peace. The early morning walks around sunrise commenced down a long and winding red dusty entry of the rural small acreage property where I was staying. It was in parts noticeably eroded by a recent welcome deluge of rain. My regular walk would then continue right – my chosen direction, for a kilometre or so. The abundant eucalypts both on the roadside and in the vast paddocks opposite, soaked up the first sunlight of the day and stirred their feathery inhabitants. It was magnificent; serene. All felt good in the world at this place. As I walked, my thoughts were that here, by morning as by night, it is magical and stirring. For just as when the sun rises and the world is waking, in the evening after the sun has set, a whole new sensory experience awaits, when the stars come out.

I had never attended one of those “star party” events before. But nearly a year ago when I received an email from someone I didn’t know, I knew immediately all that was about to change. Allan Wade, a proud recent new owner of an SDM telescope, was organizing a star party at his country property exclusively for SDM owners. It was to be some twelve months hence. With a lengthy email list of owners for all email recipients to see, I received this compelling, very appealing invitation. SDM (size does matter!) telescopes are Dobsonian style telescopes made for the enthusiast who likes to “look” at the sky as opposed to “image” its night time vibrant and delicate distant objects of beauty. As such, SDM Dobsonian’s are large aperture by normal amateur telescope standards and have a clear mission for their passionate owners – show me! Since becoming a club amateur astronomer I have discovered that whilst the two groups may have some overlap, they are almost different species. There are photographers and there are visual folk and it seems you gravitate to either one, or the other.

That delineation meant that Allan’s star party was clearly going to be a “visual” event. It also meant that a sizeable number of magnificent machines with their knowledgeable, enthusiastic owners would be present at the same time in the same place. And this place is no ordinary place. It is in the premier telescope viewing part of Australia, near Coonabarabran in New South Wales, home to the Siding Springs Observatory. It took me no time to decide I will be there! The option was open for owners to attend without their ‘scopes. I was in this category. Even still, of the some thirty-five owners in attendance there were 16 to 18 superb instruments. They ranged from the “baby” 12 inch diameter mirror to Allan’s superb 32 inch with 3.3 focal length machine named “Black Widow”. Aptly named because no astro object stood a chance of guarding its secrets once this superbly crafted telescope was pointed in its direction. These telescopes were all made by one man; SDM business owner and craftsman extraordinaire Mr. Peter Read. <http://www.sdmtelescopes.com.au/> Without doubt, Peter makes one of the best Dobsonian’s in the world. His attention to detail is nothing short of extraordinary ... and legendary. Mirrors are separate. Peter will recommend high calibre mirror makers for the client to chose. One of the renowned large aperture mirror makers he will recommend is Mike Lockwood from the U.S.A. <http://www.loptics.com/> Lockwood Custom Optics Inc. Mike has made mirrors up to 50 inches in diameter and like Peter is a sole operator who is hands-on and a perfectionist with everything that he produces. The mirror in Allan’s ‘scope was made by Mike and the views are stunning. Both Peter and Mike were special guests at the four day event.



The best Dobsonian Telescope maker in the world ... Peter Read



Allan Wade (left); around top fellow, with "Black Widow" and the author



Mike Lockwood; Mirror-maker to the stars

Formally, the star party commenced on Thursday 4th April ('19) as SDM owners trickled in to this idyllic location north of Coolah, on the road to Coonabarabran. Weary travellers had made their way from Brisbane and surrounds to the north, Adelaide to the west, Melbourne to the south and a healthy number from Sydney, Newcastle and surrounds in the east. Caravans, mobile homes and tents lined the eastern perimeter of the property as the guests arrived and established their diggings for the next four days. The "camping" area was comfortably removed from the telescope viewing area and main buildings. Other guests chose to stay at the caravan park in the nearby town of Coolah, electing to travel back to Allan's each day. Three guests however had travelled much further to enjoy some Aussie hospitality. Indeed Dave from Canada and Ed and Mike from the U.S. had met up with our host several days earlier. They were incorporating this sojourn in various different travel plans.

By late Thursday afternoon, all telescopes were set up in readiness. As with every evening, each did their own thing with meal preparation, some in the relative luxury of a fully equipped van, others such as the author of this piece, with slightly more basic equipment. Happily I was fortunate enough to be alongside a very cheerful Englishman whom as luck would have it I had spoken to five years earlier when I was considering buying an SDM 'scope. (he owns an SDM 20" f5, the telescope size I was considering) Jonathan Bradshaw was most welcoming in permitting my use of his gas stove on the couple of occasions gastronomic assistance was sought. I was most grateful and felt the very least I could do was ensure his wine glass was never empty for too long once evening was upon us. I found he offered very little resistance to my act of reciprocity and a wonderful neighbourly relationship was born!

Accommodation varied, but you could be lucky and live next door to someone with a good kitchen!



Just as the early morning was magical, the fact remains we were there for the nights. And we were not disappointed. They were spectacular, all three of them. Allan's property is not only well located for dark skies and good seeing conditions but it also enjoys near to the horizon vistas in many directions. To me, this is a key ingredient to a spectacular sky and the magnificence it can offer. Often we find ourselves frustrated by structures or trees which have a right to be there, but simply get in the way. The whole sky is one big picture and the less in the way, the bigger and better the impact. We enjoyed a very expansive view here and the result was superb. One evening, a chorus of oooohs and aaaahs was heard as more and more sets of eyes set upon a magnificent meteor passing directly overhead traversing the sky like a New Year's Eve firework. It was moving from north to south. Such was the length in time and distance of its journey, the growing chorus of spectators had enough time to be heard by others who then looked up to see the meteor continue its path. It was spectacular ending its display in Centaurus. A massive cheer of approval went up across the observing field. We were in the right place and were very glad to be here!

Those with scopes moved from one rich target to another. Nebulae, double stars, galaxies, planetary nebulae, globulars There was much movement as owners visited other 'scope owners to look and discuss. M42, the Great Orion Nebula was an early target given the time of year. The E and F stars of the Trapezium were visible easily in all the scopes, as expected. The massive swirling and expansive gas clouds and myriad tiny white stars embedded in them are miraculous and M42 remains my most preferred object in the sky. A greater challenge was splitting and seeing Sirius A and B. Occasionally the pesky B star can sit very close to or on a diffraction spike. At one ten thousandth the brightness of Sirius A, this adds to the fun. On Jonathan's scope, three of us (or was it four?) were in debate over where the companion was actually located. I think in the end we all agreed with Jonathan's stated position as it was, after all, his 'scope and he had let me use his stove! Robin Broberg, the only other MPAS contemporary present and wife Christine were active in the observing field. Robin was also engaged in the Sirius debate. I'm not sure who agreed with who in the end. That little Sirius B appears and disappears in front of your very eyes I poured another red ... or was it a port?

Telescopes varied in size from 12" to 32". All were enjoyed by their owners and passing observers. Interestingly, my own experience was one possibly (or likely) shared by some others, depending how well you knew the company, of course. Although we all wore name badges, by night all you had to go by was a voice and general shape of a person. Lights, even red lights were to be kept to a minimum where possible. I therefore had a number of occasions chatting to someone and looking through their lovely telescope, but the next day not knowing which person it was who had kindly shared their scope and knowledge with me the night before. It's a curious thing about astronomy. Tragically, with age, one forgets names all too easily too. Oh dear.



At dusk astronomers become active



Robin charts the night ahead

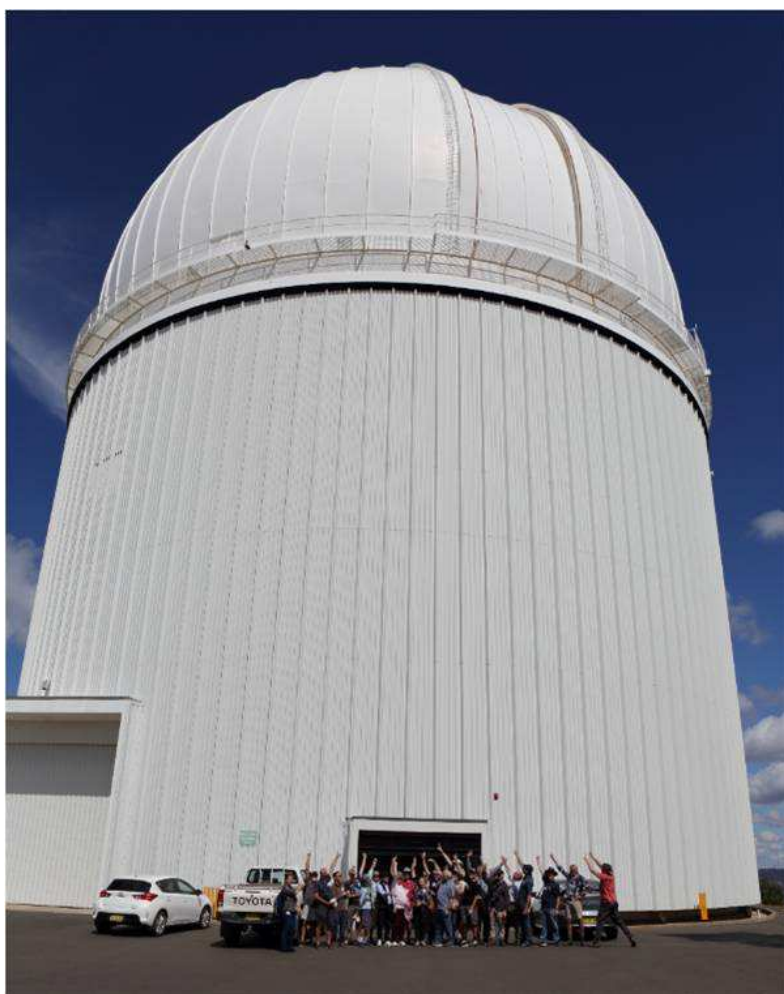
For all, there's no doubting a view through Allan's Black Widow with the Mike Lockwood optics was much anticipated. Having now achieved that, I think I have come to the ghastly realization that I will not be content until I have a 200" diameter mirror in my garden!

SIZE DOES MATTER!! If I recall correctly, the first object I saw with this superb instrument was the Sombrero Galaxy M104. At a mere 30 MLY distant, it's a canter across the universe to get there. Well that's how close it looks through his 'scope. I was amazed. Detail in the dust lane was clearly visible and the bright northern hemisphere and core of the galaxy far exceeded my expectations. Allan was using an 8mm Delos eyepiece to yield a magnification of ~330x. This appears to be his eyepiece of choice for objects such as this. Centaurus A, Omega Centuari, Tarantula Nebula, are simply stunning big ticket objects. But so too are Planetary nebulae, Homonculus Nebula and the Leo Triplet M65 M66 and NGC 3628 to name a few. We also viewed the illusive Horsehead Nebula, but this continues to remain for me, illusive.

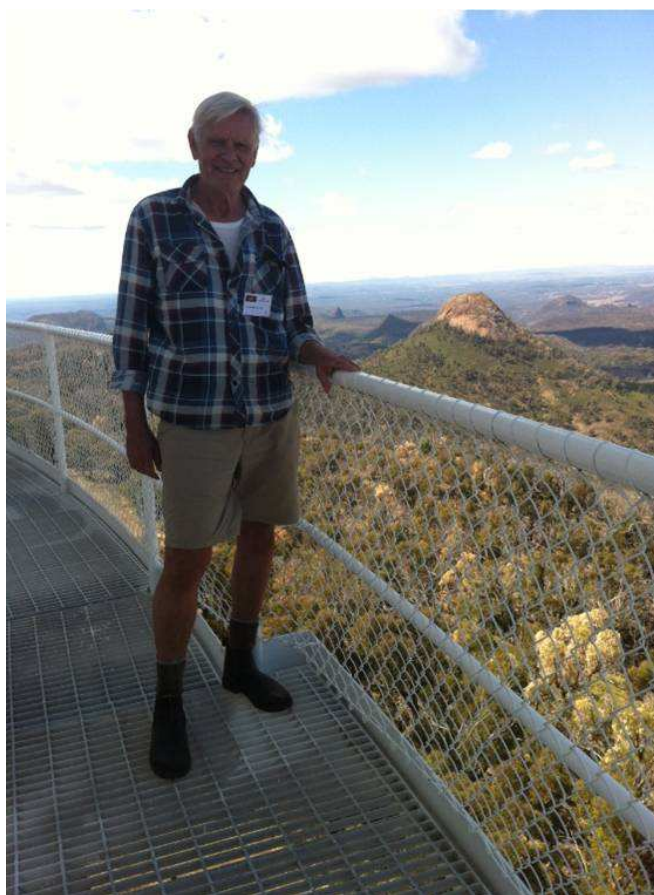
Over three nights we gorged ourselves on beautiful bright skies and mild autumn temperatures. At the end of my first night's viewing, I stood in front of my tent and had a long last look up at the sky. I thought to myself I have never seen it look this good.

Allan also had a program of activities lined up for us. For those who "signed up" and paid their \$20, a guided tour of Siding Springs was organized for the Friday morning. We convoyed in cars to the Observatory complex and were taken on a two hour inspection which included internal inspections of the two large telescopes – the 3.9m and 2.3m telescope. It is surprising to learn that there are 70 telescopes working at Siding Springs performing very different roles for countries, companies, universities and private individuals, all paying for the privilege and having technical staff to carry out works for them as required. The walks between different sites was hilly but the distant views of the Warrumbungles National Park was breathtaking. It is spectacular and dramatic.

To finish the tour, a walk around the exterior of the dome on the steel walkway of the 3.9m adds a nice adrenalin rush for those with a "thing" about heights. But now is the time to overcome those fears. The views are once again too good to miss!



3.9m Telescope. NB the external walkway above...
Photo by Mike Lockwood



But the walk is worth every anxious minute! Photo by Kim Read

Saturday was “Star Party” party day. Glasses were charged and pizzas from the local Coolah pizzeria were ordered in by Allan. At \$10 a head it was once again a good value activity! Following lunch we had the great pleasure to have two amongst us give excellent informative talks. Accompanied by visual presentations Mike Lockwood started off giving an in-depth description of how telescope mirrors are made, from start to finish. It begins with the highest quality glass made just right and that’s before it gets to Mike. It’s a long process and much patience and expertise is required to get the finished product as it needs to be for the customer. As one of the most highly regarded mirror makers for large aperture telescopes, it was fascinating to listen to Mike describe the long process and how he approaches it.

Our second speaker was our very own Dr John Carr. I had not met John before but discovered he enjoys the rare distinction of owning no less than two SDM telescopes (you can’t get a much better recommendation than that!) John spoke very engagingly on the subject of the probability/possibility of life existing elsewhere in the universe: more particularly, “intelligent” life ... With the billions of galaxies and stars and planets that are out there, surely intelligent life must exist? Statistically one might think so. The fascinating realization is that although a planet may exist for billions of years, by the time it has become “habitable” and life has evolved to an “intelligent” level, the time frame or window during which such a (intelligent/advanced) life form lives on the planet may only be a few thousands (a million?) years. Not much time out of several billion years. That narrows “planets having intelligent life” down considerably. It may only accommodate intelligent life for a small fraction of 1% of its entire existence in time... A fascinating subject.

Also on Saturday was a third event very apropos to what the Star Party was all about. Peter Read was delivering a brand new ‘scope to Gavin Bray. First light for Gavin and his telescope was on Saturday night under one of the best skies he will likely experience. Not a bad way to start out and congratulations to both he and Peter.

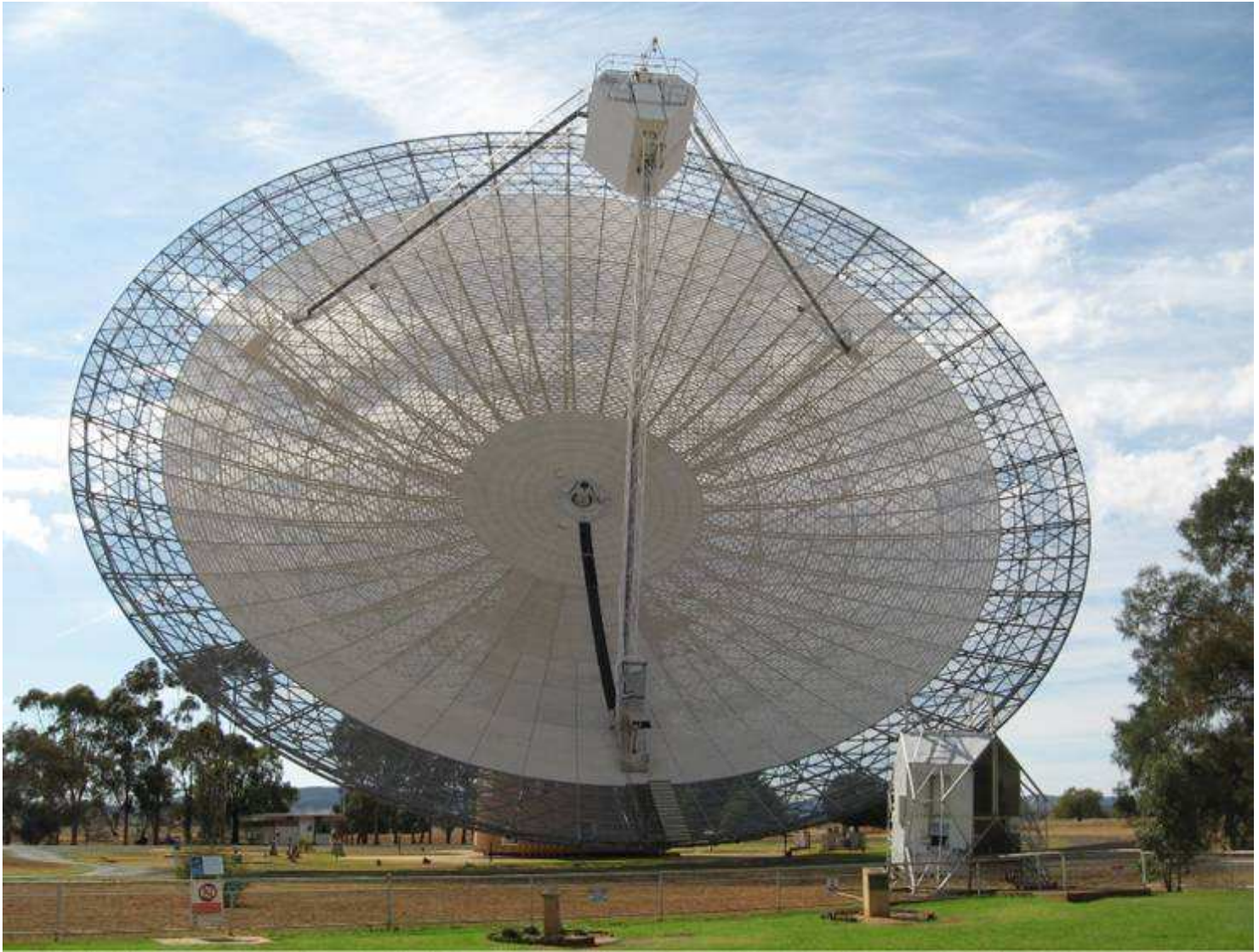
After three nights of stargazing and early morning walks, with lots of stimulation during the day, one might expect to be feeling a little weary. I suppose in a way I was. However I was also feeling intensely stimulated by the preceding four days and my senses were somehow considerably enlivened by the whole experience. I managed a drive home to Melbourne of 1000km on the Sunday quite comfortably; even allowing a small diversion to collect my dog from the kennels in Dubbo. Four or five twenty minute stops helped no doubt.... I thought much about the time I had had and the people and adventures. I felt refreshed and invigorated and a love for astronomy was reborn.

Allan Wade had done a wonderful thing and achieved it with great style and devotion. Peter Read inspired us all, by not only building all of our telescopes, but even providing workshop repairs at the star party. He is a tireless giver.

Is it possible that after such a memorable few days I could have any regrets? Yes, but only one. I will never borrow a blow-up mattress again from someone without first knowing for a fact it does not deflate every three hours!! ☐

SDM Star Party Portrait Coolah 6th April 2019 Photo taken by Mike Lockwood ...



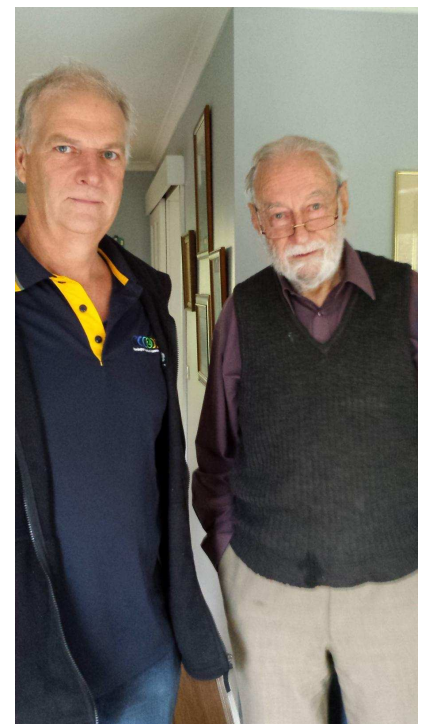


En route to Coolah, a night in Parkes 3rd April '19 .. Within minutes this massive structure turned 270 degrees, clockwise.

Clear Skies to all new friends at SDM, Bruce Renowden - 10th April 2019 - SDM #11

George Elliston donated more than 100 astronomy books, as he has decided to retire from teaching at the age of 80 years. George was a member of the Astronomical Society of Victoria for many years and a member of the British Astronomical society before he moved to Australia. George teaches astronomy and geology mainly to high school students, also was involved with the junior section at the ASV.

We offer our thanks for such a kind donation and the books will be put to good use.



Star Show “A Rock & Classical Journey through the Universe”

A sound and visual spectacular, featuring **10 String Guitarist Matthew James Fagan (aka Lord of the Strings!)** plus band and orchestra performing the music of **Pink Floyd, Holst, War of the Worlds, ELO, Queen, 2001: A Space Odyssey, Alan Parsons, original compositions and more.**

Also starring **Perry Vlahos** – a leading astronomer acknowledged as one of the world’s experts in the night sky. He’ll be presenting a **multi-media spectacular** and also give a **fully illustrated talk prior to the performance.** Perry will **mirror the music live** during the performance, using an **interactive night sky viewing program, projecting the stars live from past to present, and future, taking the audience on a journey through the Cosmos.**

Saturday 15th June 7.30pm (Doors 7pm)

Preshow talk with Perry Vlahos 7.30pm, Show 8.15pm

Deakin Edge Federation Square

Corner of Swanston Street & Flinders Street, Melbourne

TICKETS: Adult \$50, Concession \$42, Student \$35, Child U16 \$30, Group 8+ \$40

BOOKINGS: Web: <https://www.eventopia.co/starshow>

Phone: 0438 881 985 plus booking fee

Preshow talk and Musical performance all included in ticket price.

www.matthew-fagan.com

MATTHEW FAGAN – (Guitar) - Matthew Fagan has performed in over 120 countries and as guest artist with international performers Billy Connolly, The Buena Vista Social Club and Natalie Cole amongst others. Billy Connolly was quoted as saying, **"Matthew is the best artist I have toured with!"**

Matthew's project "Voyages" became the Twilight Concert, at Federation Square on Australia Day from 2004 - 2010 with Matthew as musical director, featuring over 300 performers to audiences of 20,000.

Matthew has released nine albums of music and specialises in many styles of guitar from Classical, Flamenco, Celtic, and Fingerstyle, to Electric. He performs on a unique custom made 10 String Spanish Guitar, as well as Celtic Steel String Guitar and Santana model-Paul Reed Smith Electric Solid Body Guitar. www.matthew-fagan.com

PERRY VLAHOS- (Astronomy educator, author and broadcaster).

Perry Vlahos is President of the Astronomical Society of Victoria, Inc. (ASV), its press and media liaison, and Curator of Current Phenomena. Perry is considered a 'go to man' in Victoria for astronomical comments on T.V., radio and the dailies. He regularly leads 'Tours of the Visible Universe' with a bright laser pointer for school groups, the public and other astronomers. Perry's a professional consultant and author of astronomy columns in publications such as Royal Auto, the Age, and Herald Sun.

He has appeared on every major radio station in Melbourne on multiple occasions, and many stations interstate. Perry has been interviewed on all television stations and the George Negus Tonight program featured a lengthy profile on his astronomical life and accomplishments. For the second year running Perry was the 'Astronomer in Residence' at the Meredith 'Golden Plains' music festival in March. ABC 774 morning presenter Jon Faine has called Perry a **'National Treasure'** and he's still considered ABC's astronomer in residence.

<https://twitter.com/Perryastronomy>

Other featured performers include

Alan Harris – (Didgeridoo)- A Noongar Elder and Custodian from the Bibbulmun Clan near Margaret River, in Western Australia. Alan has performed didgeridoo across USA, Canada, Pakistan, China and New Zealand. His family have taught and performed Aboriginal Culture in schools for last 16 years. Alan has performed for Nelson Mandela, Dalai Llama, U2, Carlos Santana, Peter Gabrielle & many others

Nicholas Young- (Piano/Keyboard) - Internationally acclaimed, Award Winning concert pianist and 'Young Steinway Artist', Nicholas Young has regularly concertised throughout Australia and Europe, appearing as soloist with the Vienna International, West Australian, Queensland, Adelaide and Willoughby Symphony Orchestras. Nicholas' accolades include Keyboard Winner of the 2011 ABC Symphony Australia Young Performers Awards & Winner of the 2016 Allison/Henderson Sydney Eisteddfod and Michael Kieran Harvey Piano Scholarships and the Marten Bequest Travelling Scholarship. <http://nicholasyoungpiano.com>

Marek Podstawek – (World Percussion, sound sculptor)

Marek has toured national and international Festivals in Germany, Czechoslovakia, Russia, Hungary and Yugoslavia and the United States. Marek has a well-earned reputation for his visual antics and his ability to garner audience participation.

The Electric Guitar Orchestra (EGO) Strings - Featuring Josef Hanna (Violin), Karla Hanna (Violin), Eunise Cheng (Viola), Daniel Smith (Cello)



MPAS Gallery by Steve Mohr

Above - LDN1622 | Dark Nebula - This object when so described is often referred to as having a resemblance to a Bogeyman, and I have to agree! Looking like some kind of a dark ominous shadow creature, standing poised in the night sky, with an arm raised ready to cast a hot fiery orb. But, LDN1622 is in fact not such a dramatic object, being mostly an enormous lane of obscuring dust in front of a faint emission nebula that seems to form part of the massive Barnard's Loop in the constellation of Orion. The fiery orb object is a reflection nebula, categorised as van den Bergh 62 [VDB62].

In compiling this image, I remained with the colour filters of Luminance, Red, Green and Blue; leaving out my collected Ha data set.

Information about the image: Instrument: Planewave CDK 12.5 | Focal Ratio: F8 - Camera: STXL-11000 + AOX | Mount: AP900GTO
Camera Sensitivity: Lum: BIN 1x1, RGB: BIN 2x2

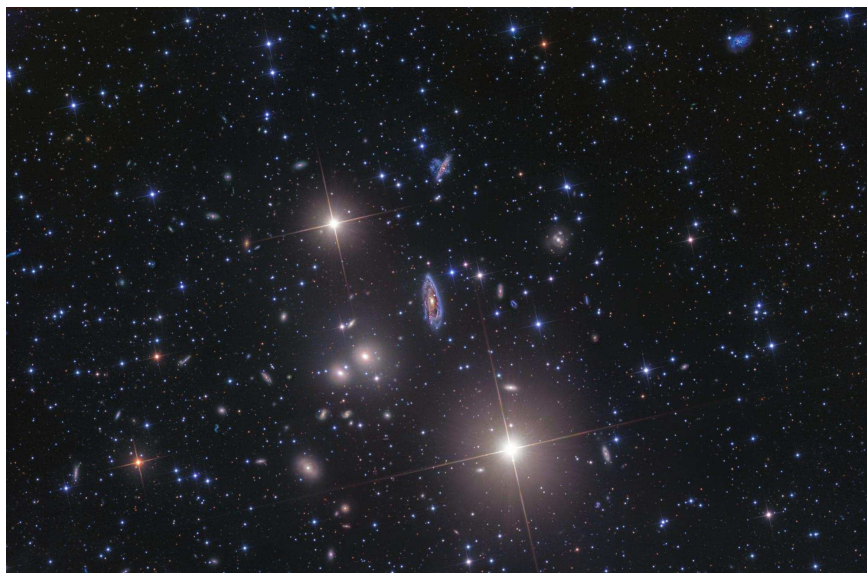
Exposure Details: Total: 19.75 hours | Lum: 55 x 900 sec [13.75hr], RGB 450sec x 16 each [6.0hrs]

Viewing Location: Central Victoria, Australia. Observatory: ScopeDome 3m. Date: March-April 2018, and December 2018-February 2019

Right - The Hydra Cluster (or Abell 1060) is a galaxy cluster that contains 157 bright galaxies, appearing in the constellation Hydra. The cluster spans about ten million light years and has an unusually high proportion of dark matter. The cluster is part of the Hydra-Centaurus Supercluster located 158 million light years from Earth. The cluster's largest galaxies are elliptical galaxies NGC 3309 and NGC 3311 and the spiral galaxy NGC 3312 all having a diameter of about 150,000 light years. [Thank you Wiki]

This image was compiled from five colour filters, of luminance, red, green, blue, and hydrogen alpha. Hydrogen alpha was used to help define NGC3312, and many of the other galaxies. Hope you enjoy having a look, as there are a crazy number and varying types of galaxies to see! Steve Mohr

Info about the image: Instrument: Planewave CDK 12.5 | Focal Ratio: F8 - Camera: STXL-11000 + AOX | Mount: AP900GTO
Exposure Details: Total: 14.75 hours | Lum: 33 x 900 sec [8.25hr],
Ha: 6 x 1200 sec [2.0hr], RGB 12 x 450sec each [4.5hrs]
Viewing Location: Central Victoria, Australia. Observatory: ScopeDome 3m Date: February to March 2019



SOCIETY INFORMATION



Peter Lowe



Greg Walton



Peter Skilton



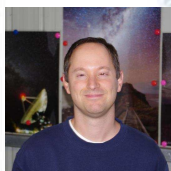
Jamie Pole



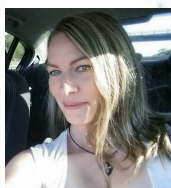
Anders Hamilton



Trevor Hand



Simon Hamm



Nerida Langcake




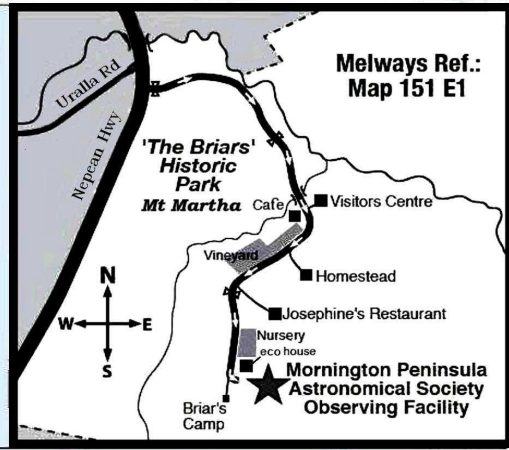
Rohan Baumann

OFFICE BEARERS OF THE MORNINGTON PENINSULA ASTRONOMICAL SOCIETY

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SOCIETY MEETINGS

Meeting Venue: MPAS Astronomy Centre
 The Briars, Nepean Hwy, Mt Martha
 (Melways ref. 151/E1)
Society meetings: Don Leggett Astronomy Centre
 8pm on the third Wednesday of the month
 (except December)
 (See map at right & Below)

For addition details:
 Internet: www.mpas.asn.au
 email: welcome@mpas.asn.au
Phone: 0419 253 252
Mail: PO Box 596, Frankston 3199, Victoria, Australia



Fred Crump

The Society also has books & videos for loan from its library, made available on most public & members nights at The Briars site. Contact Fred Crump

LIBRARY

E-SCORPIUS NEWSGROUP

M.P.A.S. main line of communication is the online newsgroup called E-Scorpius. Here you will be kept up to date with the latest M.P.A.S. news & events information as well as being able to join in discussions & ask questions with other members. To join, email welcome@mpas.asn.au say that you want to join E-Scorpius & you will be added to the E-Scorpius list.

facebook MPAS members - <https://www.facebook.com/groups/MPAS1/>
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VIEWING NIGHTS - MEMBERS ONLY

Viewing Night - Members only
 Any night, at The Briars, Nepean Hwy, Mt Martha, starting at dusk.
 Members visiting The Briars for the first time must contact Greg Walton on 0415172503 if they need help getting to The Briars site.
 Upon arrival at the site, remember to sign the attendance book in the observatory building.
For additional details:
 Internet: www.mpas.asn.au
 email: welcome@mpas.asn.au
Phone: 0419 253 252
Mail: PO Box 596, Frankston 3199, Victoria, Australia



Members please write a story about your astronomy experiences and add some pictures. Send them to the editor: Greg Walton gwpas@gmail.com
MPAS Scorpius on facebook - <https://www.facebook.com/Scorpius-MPAS-1694951307446763/>

SCORPIUS The journal of the Mornington Peninsula Astronomical Society

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